VISHAY

One of the World's Largest Manufacturers of Discrete Semiconductors and Passive Components

Vishay Thin Film Product Training Module:

Quick-Net®: Custom Precision Resistor Networks - Prototypes to Production

Build Vishay into your Design

Quick-Net® Custom Resistor Networks

- Overview
- Features and benefits
- Applications
- Summary
- How to get started
- Contacts

Overview: What is a Quick-Net® Resistor Network?

- Prototypes of precision custom resistors networks with precision matching in a standard off-the-shelf package for surface-mount or through-hole mounting
  - Allows the designer to achieve fast custom resistor network prototypes with integrated multiple resistors in a single package to any value featuring a ***two-week turnaround time*** and **no** non-recurring engineering charges (NRE)
  - Provides solutions for:
    - **physical size board area**
    - **reducing assembly cost**
    - **improved performance over individual discrete resistors**
    - **solutions for design performance end-of-life matching issues**

Features and Benefits – Quick-Net®

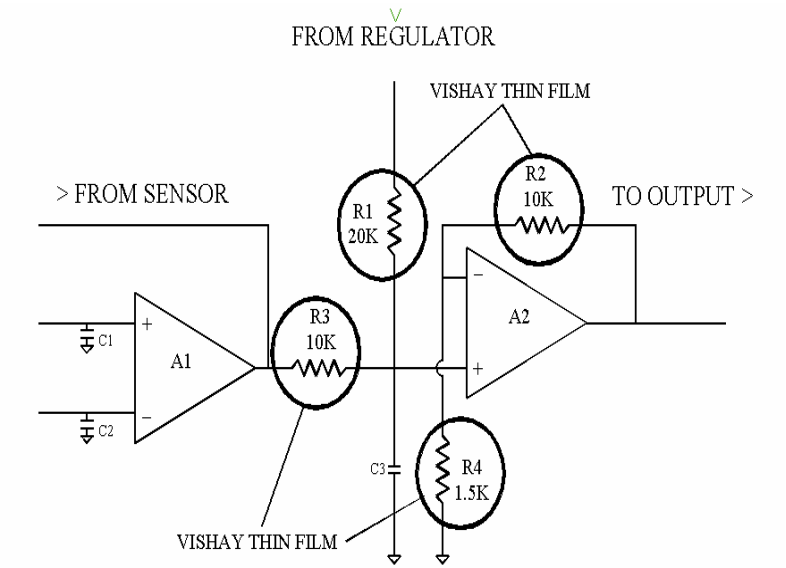
- Provides any R value precisely matched to a reference with close TC tracking and tight ratio tolerances
- Provides exceptional ratio stability over time and temperature
- Tolerances:
  - Ratio: 0.5% to 0.02%
  - Absolute: 1% to 0.1%
- TCR:
  - Tracking: ± 5 ppm/º C
  - Absolute: ± 25 ppm/º C
- Power rating:
  - 50 mW/element
- Ratio Stability: < 0.015% at 70º C for 2000 hours
- Very Low Noise: < -30 dB
- Operating Conditions: - 55º C to +125º C

Key Performance Differences

☞	Chips	Networks
TCR Absolute	± 25 ppm	± 25 ppm
TCR Tracking	± 50 ppm	± 5 ppm
Tolerance	± 0.1%	± 0.1%
Ratio Tolerance	± 0.2%	± 0.05%
Ratio Stability	0.2	0.02

Applications

- Typical custom applications for Quick-Net® include:
  - Differential Amplifier Gain Control
  - Instrument Amplifiers
  - Precision Voltage Dividers
  - Measurement Bridge Circuitry
  - Low Noise Amplifiers
  - Converter Applications
  - Signal Conditioning



Summary

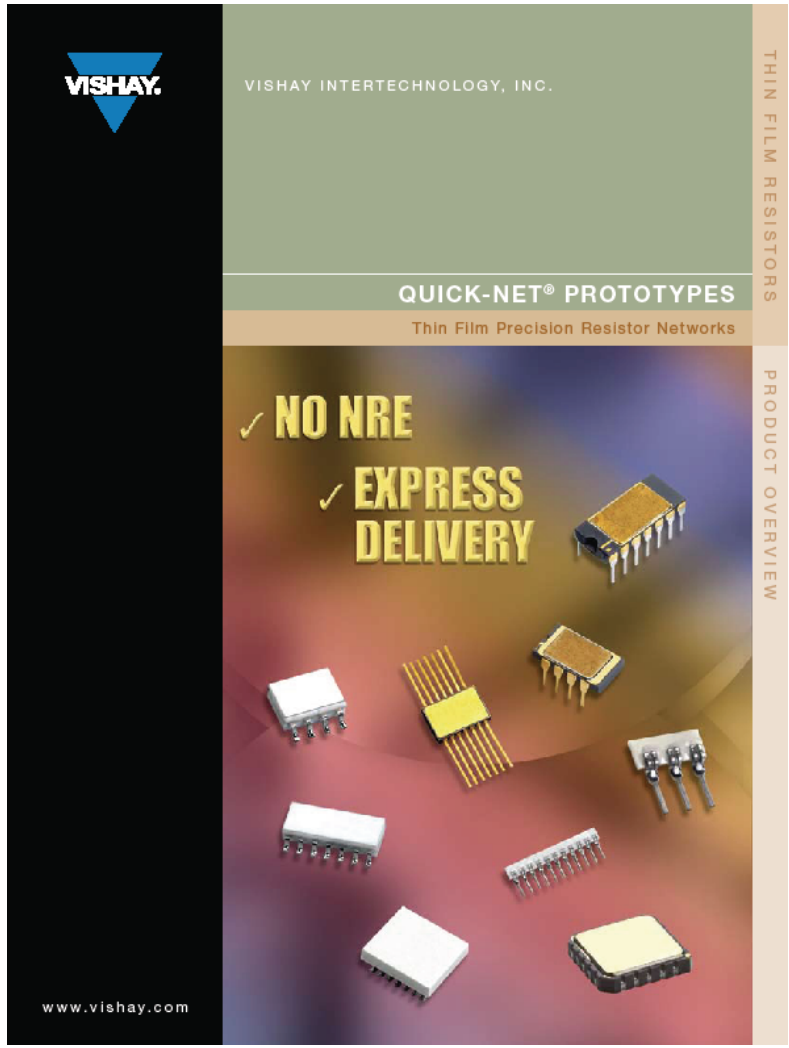
Quick-Net® provides:

- ***Delivery time of 2 weeks maximum*** for a custom Thin Film precision custom resistor network prototype
- Provides TCR tracking of ± 5 ppm/º C
- Ratio tolerances as tight as 0.02 %
- Small physical size
- Exceptional ratio stability (< 0.15 % at 70º C for 2000 hours)

Quick-Net® provides a prototype-to-production solution for those special precision resistor applications

How To Get Started

- Design the network you want
- Select a package format
- Complete the worksheet for electrical requirements and schematic pin-out
- Send the worksheet to Vishay Customer Service or your local Vishay Representative



Checklist

- Go to www.vishay.com/doc?49728 to download a pdf of the Quick-Net® brochure
- Package type: through-hole, surface-mount, hermetic, etc.
- Operating environment: military, aerospace, commercial, industrial
- Power: resistor rating / package rating
- Temperature range: commercial, industrial, military
- Size issues: seated height, length, width
- Resistance tolerance: absolute / ratio
- Temperature Coefficient of Resistance (TCR): absolute / ratio
- Ratio: voltage or resistance
- Special testing: 100% electrical, Mil-STD-202, Mil-PRF-83401
- Schematic: isolated, bussed, or crossovers
- Quantity: prototype & production

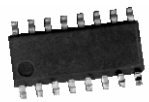
Pick-a-Package Format

- **Through-Hole**
  - Single-in-line

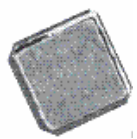
  - Dual-in-line

- **Surface-Mount**
  - Leaded





  - Leadless

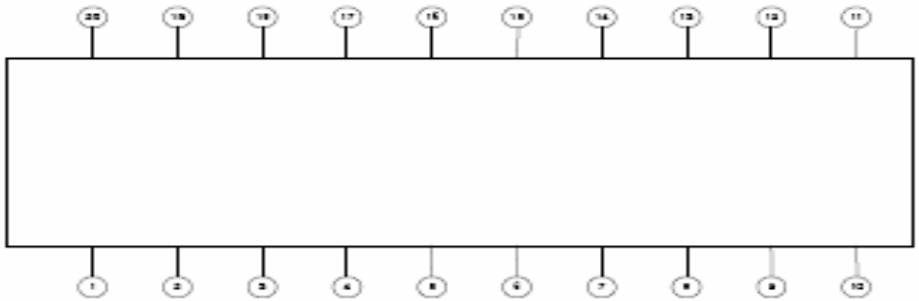




VISHAY

Vishay Thin Film Application Specification Guide

Vishay Thin Film Reference No.:
Name: Title:
Company: Division: Dept.:
Address:
City: State: Zip:
Phone: Fax/Email:
Expected Usage/Year: Timing-Prototypes: Prod.:
Application: Hermetic Sealed: ☐ Yes ☐ No
Drawing No.: Package Choices:-1[a]: 2[b]:
Special Testing: Operating Temperature Range: °C to °C

Resistor No.	Resistor Value (Ω)	Tolerance		TCR		Reference Resistor	MAX VOLTAGE		POWER
		Absolute ±%	Ratio ±%	Absolute ±ppm/°C	Tracking ±ppm/°C		Peak V	RMS V	Max W



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Complete the worksheet

Quote and Order Placement

- When completed, please send the worksheet to your local Vishay Direct Sales Office, Local Representative, or Vishay Customer Service Representative

Technical Questions

For technical questions regarding the Quick-Net® Program, please contact:

- Geoff Giambra, Product Marketing Engineer, at geoff.giambra@vishay.com (+1-716-283-4025 x232)
- William Cuviello, Sr. Manager for Product Marketing, at william.cuviello@vishay.com (+1-716-283-4025 x203)

- For more information about Quick-Net®, visit the Vishay website at: www.vishay.com/ppg?60078